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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/013,101	11/06/2001	Anthony O. Banal	10249US01	9549

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Attention: Eric D. Levinson  
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EXAMINER

HECKENBERG JR, DONALD H

ART UNIT

PAPER NUMBER

1722

DATE MAILED: 10/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/013,101	BANAL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Donald Heckenberg	1722	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on \_\_\_\_\_ .

2a) This action is **FINAL**.                    2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-20 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 17-20 is/are allowed.

6) Claim(s) 1-8 and 10-15 is/are rejected.

7) Claim(s) 9 and 16 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on November 6, 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .	6) <input type="checkbox"/> Other: _____ .

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1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that

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was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 10-11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han (U.S. Pat. No. 5,914,136) in view of Hamada et al. (U.S. Pat. No. 5,356,283).

Han discloses a multiple cavity injection molding system. In the embodiment shown in figures 3-5, the system comprises multiple single cavity injection molds (in figure 4, one single cavity injection mold to the left of runner block 42, the other single cavity injection mold to the right of runner block 42). Each single cavity injection mold having a first mating portion (60) and a second mating portion (70) which are movable between a closed position in which a mold cavity (44) is formed and an open position in which the molded product is removed from the cavity. Further, the first and second mating portions of each single cavity injection mold are all capable of moving independently from each other (see figure 4 showing each single cavity injection mold having independently mounted and movable mating portions 60 & 70, and cl. 3, ll. 33 - cl. 4, ll. 12). The mating portions work to independently center themselves upon

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movement to the mold closed position (cl. 4, ll. 1-7). The mold is such as to have a resin delivery system (42) for delivering resin into the single cavity injection molds. Such a resin delivery system is operatively coupled to the first mating portion in that both are part of the upper structure which is united by chase (10).

Han does not disclose the apparatus to comprise an ejector system.

Hamada discloses an injection molding system. The system is provided with an ejector system (34) operatively coupled to the lower mating portion of the molds (see figure 1). Hamada notes that the ejector system allows for the molded product to be ejected from the molds (cl. 2, ll. 18-19).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have modified the apparatus of Han as such to have provided the mold with an ejector system of the injection molds because this would have aided in removing the molded products from the molds as suggested by Hamada. Such an arrangement would necessarily result in the ejector system being "operatively coupled" the first mating portion as both would be part of the lower structure and joined by chase (20). Further, the ejector system would inherently be "resiliently" coupled to the second mating

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portion in that the ejector pin disclosed by Hamada would have to move in and out of the mold cavity in order to achieve the ejecting of the molded article.

Claim 2 recites that the injection molds are optical disc molds. Although Han and Hamada have their injection molds configured to produce semiconductor packages, it would have been obvious to one of ordinary skill in the art of injection molding at the time of Applicant's invention that the Han and Hamada mold cavity could be modified to produce optical discs as all other aspects of the injection molds would remain the same, and such an arrangement would allow the molds to be used in an optical disc production process.

5. Claims 3-4, 6-8 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han solidified by Hamada as applied to claims 1-2, 10-11 and 15 above, and further in view of Gellert (U.S. Pat. No. 4,891,001; previously of record).

Han and Hamada disclose the apparatus as described above. Han and Hamada do not disclose the apparatus to comprise a hot runner manifold, or the injection molds separated from each other by a material having a low thermal conductivity such as air.

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Gellert discloses an injection molding apparatus. The apparatus is provided with a hot runner manifold (24) for delivering the molding material to plural mold cavities in a molten state (cl. 2, ll. 22-24). The manifold is separated from the molds by insulative spaces (54), in which air is circulated (cl. 1, ll. 42).

It would have been obvious to one of ordinary skill in the art at the time of Applicant's invention to have modified the apparatus of Han and Hamada as such to have made provided the apparatus with a hot runner manifold separated from the molds by insulative air spaces because such a manifold allows for the molding material to reach the cavities in a molten state as suggested by Gellert. By placing the hot runner manifold of Gellert into the apparatus configuration disclosed by Han and Hamada, the injection molds would be separated by the air coolant spaces of the manifold.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Han, Hamada, and Gellert as applied to claims 1-4, 6-8, 10-12, and 15 above, and further in view of Miyazawa et al. (U.S. Pat. No. 5,232,710; previously of record).

Han, Hamada, and Gellert disclose the apparatus as described above, including the use of air as an insulator

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between the two mold cavities. Han, Hamada, and Gellert do not disclose an insulative ceramic material to be between the single cavity injection molds.

Miyazawa teaches that the equivalent insulative properties of air and ceramics are known in the injection molding art (column 9, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Han, Hamada, and Gellert as such to have used a ceramic between the two molds as opposed to air because ceramics are known in the art as an equivalent insulator to air as suggested by Miyazawa.

7. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han modified by Hamada as applied to claims 1-2, 10-11 and 15 above, and further in view of Steil et al. (U.S. Pat. No. 6,368,542).

Han and Hamada disclose the apparatus as described above. Han and Hamada do not disclose the first mating portion of the injection molds to be resiliently coupled to the resin delivery system by the use of Belleville washers.

Steil discloses an injection molding apparatus. Steil teaches the mold to comprise a mold block (12) and a resin

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delivery system (18). The mold block is resiliently coupled to the resin delivery system by the use of Belleville washers (68) for the purpose of allowing for the thermal expansion of the resin delivery system (column 2, lines 47-58).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Han and Hamada as such to have resiliently coupled the molding portions (and thus, mating portions) of the injection molds to the resin delivery system using Belleville washers because this would have allowed for the thermal expansion of the resin delivery system as suggested by Steil.

8. Applicant's arguments with respect to claims 1-16 have been considered but are moot in view of the new ground(s) of rejection.

It is noted Applicant has asserted claim 1 should be allowable for the same reasons as claim 17. Specifically, Applicant notes that the previous Office Action indicated claim 17 as allowable in part because of the cavity side and core side being capable of moving independently (response, p. 6, ll. 17-21). However, claim 1 and claim 17 are of different scope. Claim 17 recites the "cavity side" and "core side" as being capable of movement independent of each other, whereas claim 1 recites a

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"first mating portion" and "second mating portion" as being capable of movement independent of each other. The disclosure of the instant application clearly designates "cavity side" and "core side" as meaning a structure including the mold cavity (see for example, figure 1, references numerals 22 and 28). With respect to first and second "mating portion" the disclosure does not clearly designate these as including molding cavities (see for example, figure 1, reference numerals 16a and 18a which are directed at "mating portions" on the outer periphery of the mold structure). Moreover, claim 1 does not positively require the mating portions themselves as forming the mold cavities. Therefore, "first mating portion and second mating portion" may broadly construed to be anticipated by the prior art as described above.

9. Claims 9 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

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The prior of record fails an injection mold system as recited in of claim 9.

The closest prior art disclosed by Han, Hamada, and Gellert is described above. While Gellert discloses an insulative air space (54) between molds, and further discloses a coolant passage (50) within the molds, there is no teaching or suggesting for a liquid coolant to be circulated "between the injection molds" as is required in by the combination recited in claim 9. Nor do any of other prior art references of record suggest this feature.

With respect to the indicated allowability of claim 16, see the previous Office Action.

11. Claims 17-20 are allowed. See the reasons for indicating allowable subject matter in the previous Office Action.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this

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action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald Heckenberg whose telephone number is (703) 308-6371. The examiner can normally be reached on Monday through Friday from 9:30 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at (703) 308-0457. The official fax phone number for the organization where this application or proceeding is assigned is (703) 972-9306. The unofficial fax phone number is

(703) 305-3602.

  
Donald Heckenberg  
October 15, 2003

  
JAMES P. MACKEY  
PRIMARY EXAMINER

10/15/03